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A&T #20 / Recon. (A&T) 4/30/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Wei-Kuo Lee, et al.
Serial No.	:	09/311,480
Filing Date	:	May 13, 1999
For	:	CABLE SEMICONDUCTING SHEILD
Group Art Unit	:	1773
Examiner	:	Kruer, Kevin R.
Attorney Docket No.	:	DOW-31481 (D-17965)

CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10

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Date: 4.28, 2003 Linda Hargrave

Assistant Commissioner for Patents
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Sir:

REPLY UNDER 37 C.F.R. §1.116

The applicants begin this Reply by noting that the rejections under 35 U.S.C. §112, 2nd paragraph are withdrawn as is the rejection of Claims 1-2 and 4 as obvious over applicants' admissions in view of Nahass et al. (USP 5,591,382). The applicants thank the Examiner for his reconsideration and withdrawal of these rejections.

Claims 1-5, 7 and 9 are rejected under 35 U.S.C. §103(a) as obvious over Ongchin (USP 4,286,023) in view of Nahass et al. for reasons of record. The applicants traversed this

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rejection in the Reply that they filed on December 16, 2002, and they stand on that traversal and incorporate it herein by reference. The Examiner has responded in Paper No. 19 to the arguments offered by the applicants in their December 16th Reply, and the applicants will reply to the Examiner's Response to Arguments below and after they have identified the two remaining rejections of Paper No. 19.

Claims 1, 6, 8 and 10 are rejected under 35 U.S.C. §103(a) as obvious over Ongchin in view of Silver et al. (USP 4,317,001) and Nahass et al. This rejection is a virtual repeat of the rejection of these same claims in Paper No. 17 except for two points. First, in the rejection of Paper No. 17, the Examiner relied on Silver et al. for teaching the addition of carbon black conductive fillers to insulative layers. In the rejection of Paper No. 19, he has replaced this reference to Silver et al. with a reference to Nahass et al. for the teaching that carbon black is typically utilized as a conductive additive because of cost factors. Second, the Examiner now relies on *In re Kerkhoven* for the proposition that it is *prima facie* obvious to combine two or more compositions each of which is taught by the prior art to be useful for the same purpose in order to form a third composition to be used for the very same purpose.

As with the rejections of Claims 1-5, 7 and 9 above, the applicants stand on their traversal of this rejection of Claim 1, 6, 8 and 10 provided in their Reply filed on December 16, 2002, and they incorporate that traversal herein by reference not withstanding the differences between the rejections of Paper Nos. 17 and 19. In their Reply of December 16th, the applicants distinguished the *Kerkhoven* decision from the facts at hand, and the substitution for Nahass et al. for Silver et al. has not materially change the basis of this rejection. In any event the applicants will address the basis of this rejection in more detail in their comments on the Examiner's Response to Arguments.

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Finally, Claims 1-5, 7 and 9 are rejected under 35 U.S.C. §103(a) as obvious over EP 0 420 271 A1 in view of Nahass et al. for reasons of record. Here again, the applicants traversed this rejection in their Reply of December 16th, and here too they stand on that traversal and incorporate it herein by reference. Further comments regarding this rejection are provided in the applicants' comments on the Examiner's Response to Arguments.

APPLICANTS' COMMENTS ON THE EXAMINER'S RESPONSE TO ARGUMENTS

The Examiner first takes issue with the applicants' position that the combination of carbon black and carbon fibrils result in lower viscosities at various shear rates in comparison to compositions that comprise solely carbon black or solely carbon fibrils. The Examiner argues that the data in Table 1 of the specification does not support the applicants' position because the carbon black composition comprises a large amount of conductive filler. With all due respect, the applicants believe the Examiner is not focusing on the real message from this data, i.e., synergy.

The teaching of the data of Table 1 is not merely that compositions that comprise carbon black have lower viscosities than compositions that comprise carbon fibrils (although the data does support this conclusion, and this conclusion is consistent with the teaching of Nahass et al.); rather the message is the unexpected synergy of reduced viscosity that results from blending carbon black with carbon fibrils. Not only does this blend lower the viscosity across a spectrum of shear rates as compared to carbon fibrils, but it also lowers it in comparison to carbon black (something truly unexpected). Nothing in any of the cited references even begins to suggest this result.

The Examiner then takes exception with the applicants' position that a blend of carbon black and carbon fibrils results in compositions with improved thermal resistivity over extended

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thermal cycles. The applicants pointed to the data in Table 2 in support of their position, but the Examiner argues that this data is not commensurate in scope with the claims. Specifically, the Examiner argues that the examples are crosslinked, but the claims are not limited to crosslinked compositions. Further, the Examiner argues that the data of Table 2 is not comparative because the commercial composition does not contain LLDPE while the inventive compositions do. Finally, the Examiner takes the position that the results are expected because Nahass et al. teaches that a composition comprising nanotubes should be more structurally stable. The applicants takes exception with each of these positions.

Regarding the Examiner's argument that the data of Table 2 is not commensurate with the scope of the claims, this is only marginally relevant. Clearly, the claims are not limited to crosslinked compositions but just as clearly, they include crosslinked compositions. The reasons that the inventive compositions of Table 2 are crosslinked is because the comparative example (a commercial material) is crosslinked. As the applicants noted in their specification at the paragraph bridging pages 8 and 9 and the immediate following paragraph on page 9, some applications are better served with a crosslinked composition.

With respect to the inventive examples comprising a blend of LLDPE and ethylene/ethyl acrylate, again the relevance is marginal at best. The nature of the matrix composition in which the carbon black and/or carbon fibrils is contained has little, if any, impact on the conductivity of the carbon black or carbon fibrils (at least with respect to a composition of LLDPE versus a blend of LLDPE and ethylene/ethyl acrylate).

With respect to the Nahass et al. teaching that compositions comprising carbon black are not as structurally stable as compositions comprising carbon fibrils, the applicants respectfully disagree. Nahass et al. teach that the blending technology useful for carbon black does not work

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for carbon fibrils (column 6, lines 48-50), not that one produces a better structure than the other. Moreover, Nahass et al. teaches nothing regarding the thermal stability of a composition with carbon black as compared to a composition with carbon fibrils over various thermal cycles.

The Examiner next comments on the applicants statement made *in arguendo* that the carbon fibrils of Nahass et al. are not necessarily synonymous with the carbon nanotubes of the present invention, stating, in so many words, that the applicants failed to note the difference. The applicants agree that they failed to note the difference, if a difference does exist, but for purposes of this application, the carbon fibrils of Nahass et al. are considered the same or equivalent to the carbon nanotubes of the present invention.

The Examiner next comments that he does not find the applicants argument that Nahass et al. teaches away from the use of blends persuasive because Nahass et al. does not explicitly or implicitly state that techniques for dispersing carbon fibrils will not work with carbon black. True as this may be, the fact remains that the overall teaching, both explicitly and implicitly of Nahass et al., is that different techniques are necessary for dispersing carbon fibrils than the conventional techniques for dispersing carbon black. Indeed, Nahass et al. clearly teach that an additional step, i.e., the preparation of a masterbatch, is necessary for proper dispersion of carbon fibrils (as opposed to carbon black which is simply added directly into an extruder). As such, whether or not carbon black can be dispersed by a technique used to disperse carbon fibrils is arguably irrelevant because at the very least, Nahass et al. teaches that carbon fibrils require additional steps for proper dispersion, and adding steps to a dispersion process is moving away from the generally accepted goal of minimizing the steps of a commercial process.

The Examiner next comments on the applicants' position that Nahass et al. does not provide any motivation to one skilled in the art to blend carbon black with carbon fibrils (again

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relying on *In re Kerkhoven*). As noted earlier, the applicants have distinguished the *Kerkhoven* decision from the facts at hand and in any event, the applicants view the Examiner's position as more of an "obvious to try" argument than a §103 obviousness argument.

Finally, the Examiner takes exception to the applicants argument that the dependant claims are patentable over the art because the art fails to teach the relative amounts of carbon fibrils and carbon black in the surrounding layer of the cable. The Examiner characterizes these relative amounts as mere optimization, but the applicants again respectfully disagree. Simply put, since none of the art references teach or suggest a composition comprising a blend of carbon black and carbon fibrils, none of these references, either alone or in combination with one another, can even begin to suggest a preferred combination.

The Examiner is requested to reconsider the remaining three rejections in view of both the previously filed arguments and the comments of this Reply, and then to withdraw the rejections and to forward the application to issuance.

Respectfully submitted,

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